# Mariko NUNO*: **On the identity of *Cladonia subpityrea* Sandst. and *C. merrillii* Sandst.**[**]

## 布 万里子*: タイワンレンゲゴケと *Cladonia merrillii*[**]

*Cladonia merrillii* Sandst. was described as a new species by Sandstede (1928) and the type specimen was distributed as Kryptogamae Exsiccatae ed. Mus. Nat. Hist. Vindobonensii, no. 3057. It has irregularly branched podetia with more or less fruticulose appearance. The cups are very indistinct even when present. The podetia are pale-yellowish green due to the presence of usnic acid which is considered to be one of the characteristics of the Unciales. Probably in connection of these characters, Sandstede considered *C. merrillii* to be related to *C. amaurocraea* and *C. pachycladodes*, and he (1938) classified it under subsection Unciales. However, *C. merrillii* usually has closed axils and a few squamules and granular soredia scattering on the podetia. These characters are never found in any other species of Unciales. Consequently, *C. merrillii* can be better classified under subsection Cladonia rather than under subsection Unciales.

The holotype specimen of *C. merrillii* comprises about 45 podetia. In all podetia examined, psoromic acid and usnic acid were easily detected with both microcrystal and thin-layer chromatographic (TLC) methods. In most of them, fatty acid (protolichesterinic acid-type) was also detected, though it could not be detected in some specimens. Generally, it is often very difficult to detect fatty acid as crystals by the recrystal method and as a spot on chromatograms by the TLC method. Thus it appears that fatty acid is usually present in *C. merrillii*, but in some podetia it is produced only in extremely low concentration.

*Cladonia merrillii* is known only from the type locality in the Philippines: Dumulmog, Manila, Isl. Luzon; altitude ca 1500 m; collected by E. D. Merrill.

*Cladonia subpityrea* Sandst. was also described by Sandstede (1928), being based on a specimen collected by Merrill at the same locality as in the type

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of *C. merrillii*. *C. subpityrea* has simple or irregularly branched podetia with closed axils. The podetia are more or less sorediate and squamulose and has sometimes cups. Sandstede (1938) classified this species under subsection Cladonia (Clausae Körb.).

The type specimen of *C. subpityrea* includes about 25 podetia. Psoromic acid was detected in all podetia examined. Fatty acid (protolichesterinic acid-type) is also present in most of them, though it can be detected with extreme difficulty in some specimens probably due to the low concentration. In addition, usnic acid could be confirmed in most of the podetia as far as the author examined. Sometimes, however, the detection of usnic acid is extremely troublesome even by the TLC method. It seems, therefore, that the concentrations of both fatty acid and usnic acid are very variable in *C. subpityrea*.

According to Sandstede's description, inner medullary layer of *C. merrillii* is almost twice thicker than that of *C. subpityrea*. As far as the author examined, however, there is no distinct difference between them, even though *C. merrillii* has somewhat thicker inner medulla.

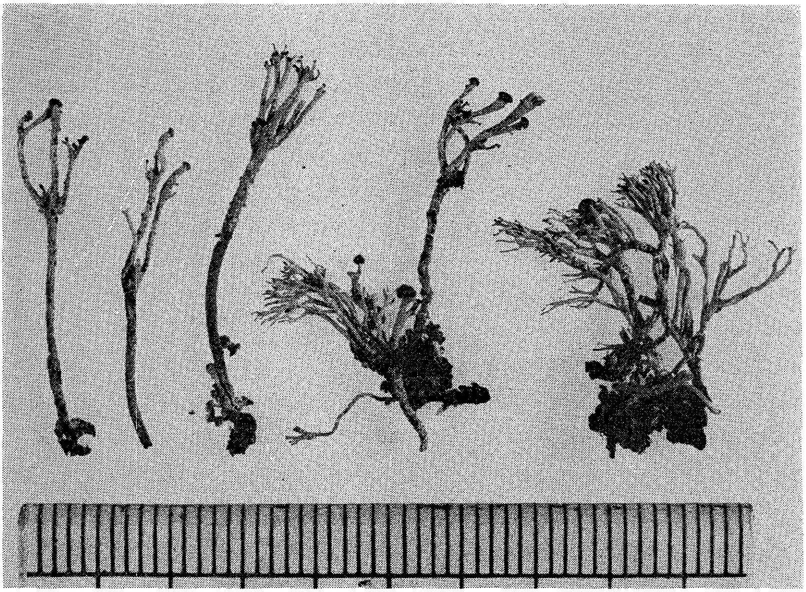

Fig. 1. Holotype of *Cladonia subpityrea* Sandst.

Although *C. merrillii* has taller and less proliferate podetia, it is apparently included in variations shown by *C. subpityrea* and there is no distinct difference in the chemistry between these two species.

For the reasons discussed above, *C. merrillii* and *C. subpityrea* can be considered to be conspecific. Therefore, *C. merrillii* is reduced as a synonym of *C. subpityrea* as shown below.

**C. subpityrea** Sandst., Ann. Naturhist. Mus., Wien **42**: 61. 1928—Type collection. Krypt. Exs. Vindob. 3056—holotype in W and isotype in TNS.

*C. merrillii* Sandst., Ann. Naturhist. Mus., Wien **42**: 62. 1928—Type collection. Krypt. Exs. Vindob. 3057—holotype in W and isotype in TNS.

*C. formosana* Asah., Journ. Jap. Bot. **17**: 485. 1941—Type collection. Formosa: Rengechi (Asahina no. 112)—holotype in TNS.

*Cladonia subpityrea* is widely distributed in south-eastern Asia and has been reported from Japan (Asahina, 1941, 1950), Formosa (Asahina, 1941), the Philippines (Sandstede, 1928; Herre, 1951), Eastern-Himalaya (Asahina, 1966), and New Guinea (des Abbayes, 1956). It has been also collected in Malaya and North Sabah. In addition, it was reported from Mexico and

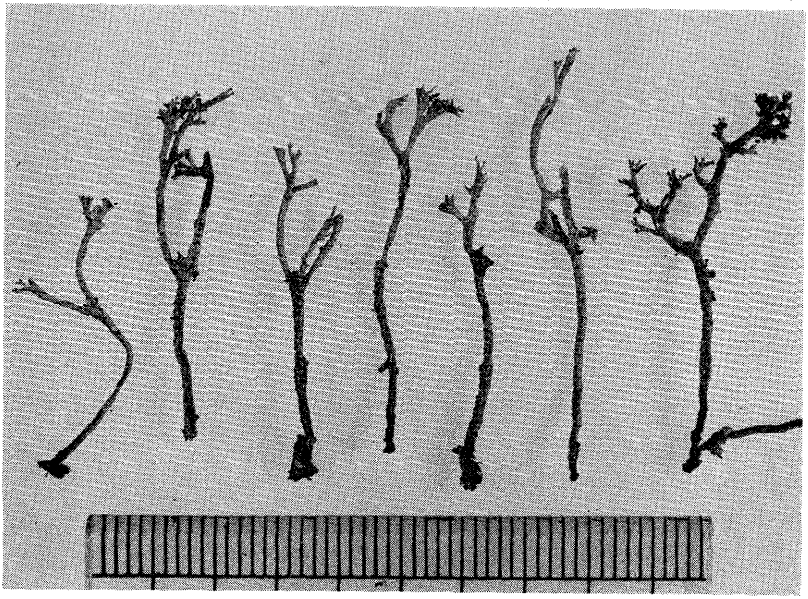

Fig. 2. Holotype of *Cladonia merrillii* Sandst.

Guatemala (Evans, 1955) and from Jamaica (Dix, 1957), though these specimens have not been examined by the author.

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Sandstede は Ann. Naturhist. Mus., Wien (1928) に，フィリッピン産のクラドニア，*C. subpityrea* (タイワンレンゲゴケ) と，*C. merrillii* を新種として同時に記載した。タイワンレンゲゴケは日本を含む東南アジアを中心に広く分布し，閉鎖亜節，Subsect. Cladonia (Clausae Körb.) に属する。一方 *C. merrillii* はタイプ品の産地であるフィリッピンにしか報告はない。Sandstede (1938) は本種をウンチアーレス亜節，Subsect. Unciales に入れたが，ウスニン酸を含む以外にウンチアーレス亜節に留める形態的な根拠に乏しく，むしろタイワンレンゲゴケが属する閉鎖亜節に入れるべきであろう。両者共プソローム酸の他にウスニン酸，脂肪酸を含むが，ウスニン酸と脂肪酸は両者の間に量的な変動が見られる。タイプ品を比較した限りでは形態的に区別する事は困難で，この両者は同一種と見做される。*C. subpityrea* と *C. merrillii* は同じ論文の中で発表されていて，*C. subpityrea* の方が1頁先に記載されている事と，この名前の方が広く使用されているので，*C. subpityrea* が残り，*C. merrillii* は synonym となる。